# Exhibit J

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## INVALIDITY CONTENTIONS FOR U.S. PATENT NO. 7,177,369
## BASED ON EH ("YEH")

Based upon Plaintiff's Complaint, Infringement Contentions, and apparent claim constructions and application of the claims to Defendant's accused products, as best as they can be deciphered, the reference charted below anticipates or at least renders obvious the asserted claims. These invalidity contentions are not an admission by the Defendant that the accused products are covered by or infringe the asserted claims, particularly when these claims are properly construed and applied. These invalidity contentions are not an admission that the Defendant concedes or acquiesces to any claim construction implied or suggested by Plaintiff's Complaint or Infringement Contentions. Nor is Defendant asserting any claim construction positions through these charts, including whether the preamble is a limitation. The portions of the prior art reference cited below are not exhaustive but are exemplary in nature.

"Channel Estimation Using Pilot Tones in OFDM System" by Yeh, et al., IEEE Transactions on Broadcasting, Vol. 45, No. 4, ("Yeh") (pp. 400-409) published in December 1999. This reference is prior art under at least 35 U.S.C. § 102(a)(b), and 103(a). As described in the following claim chart, the asserted claims of U.S. Patent No. 7,177,369 (the "'369 Patent"), are invalid as anticipated by Yeh.

To the extent that Yeh is found not to anticipate one or more of the asserted claims of the '369 Patent, these claims are invalid as obvious in view of Yeh alone or in combination with other prior art references disclosed in Defendant's Invalidity Contentions and accompanying charts, including without limitation as set forth below.

| '369 Patent | Yeh |
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| Claim 1 | |
| 1[p] A method comprising: | To the extent the preamble is limiting, Yeh discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. For example, see the following passages and/or figures, as well as all related disclosures: Yeh is entitled "Channel Estimation Using Pilot Tones in OFDM System" wherein "Two **time-domain channel estimation methods** are proposed" and Yeh finds that "the proposed time-domain channel estimation schemes **perform better than the conventional frequency domain channel estimation techniques**".  Yeh at p. 400. |

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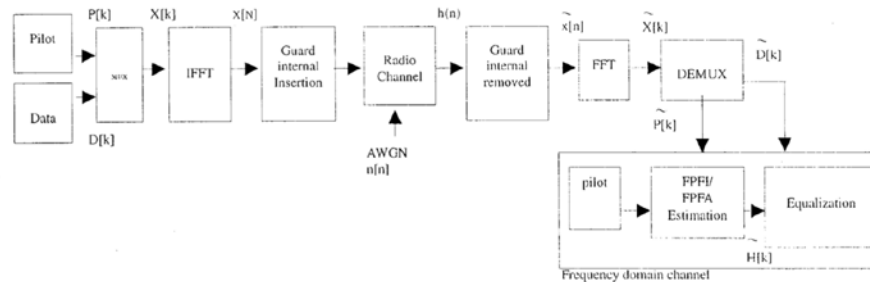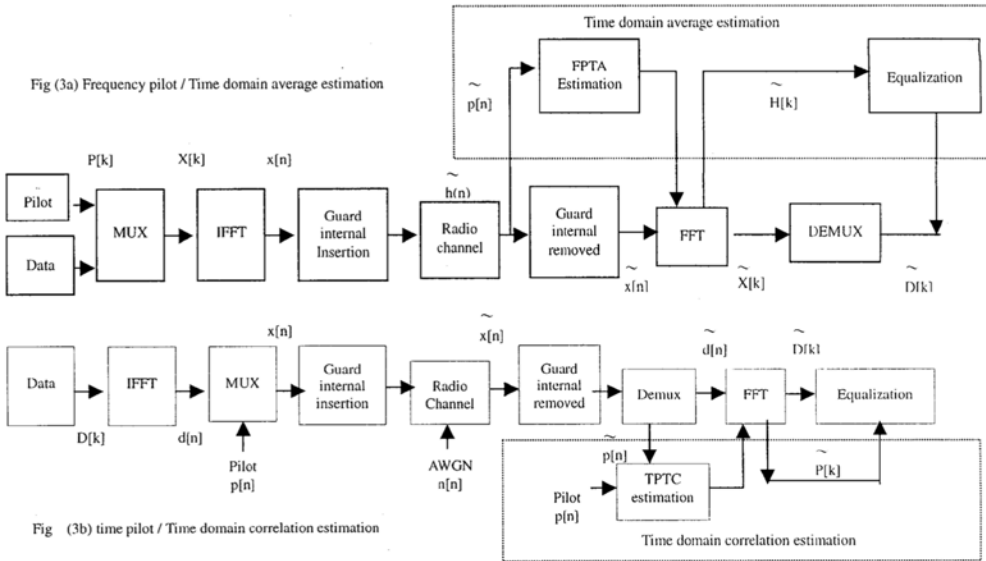| '369 Patent | Yeh |
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|  | Thus, Yeh encourages a POSITA to use a time-domain approach that includes "***identifying at least one multipath transmission delay within a reverse path data signal received from a receiving device***" in place of a frequency domain approach for OFDM.<br><br>Yeh describes that "A typical OFDM system is depicted in Fig. 2":<br><br><br><br>Figure 2   Channel model estimation of frequency pilot in the frequency domain<br><br>Yeh at p. 406.<br><br>More specifically,  Yeh teaches "channel estimation conducted in the time domain" using two approaches "FPTA" and "TPTC" as summarized by the excerpt below: |

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| | Pilot tones are modulated with a PN sequence in the frequency domain and are inserted into each OFDM symbol with a ratio PR =1/R using scheme A. The channel response is estimated in the frequency domain using FFT processing and comparing received pilots with the locally stored reference pilots. This is referred to as the Frequency Pilot Frequency Interpolation (FPFI) technique since the channel response is obtained via frequency interpolation. The pilot tones can also be inserted into the OFDM symbols using scheme B. In this scheme, all pilot tones are inserted in the first OFDM symbol (pilot symbol) of a data frame. The channel response is obtained by averaging several consecutive pilot symbols and comparing the average with a locally stored reference symbol [5]. This technique is referred to as the Frequency Pilot Frequency Average (FPFA) technique.<br><br>In this paper, channel estimation conducted in the time domain is proposed. In one of the two proposed techniques, instead of the PN sequence the positive and negative polarization pilot signals are alternatively inserted into OFDM symbols in the frequency domain using FPFI. An OFDM symbol can be regarded as several time slots, with each time slot having a pilot. Assuming that the impulse response of each time slot is identical, one can obtain the channel response in the time domain by averaging these time slots. This technique is referred to as the Frequency Pilot Time Average (FPTA) technique, as depicted in Fig. 3a.<br><br>**Yeh at 401.** | In the other technique a PN sequence is periodically inserted into the OFDM symbol in the time domain, and the channel response can be obtained via correlation in the time domain. This technique is referred to as the Time Pilot Time Correlation (TPTC) technique, as depicted in Fig. 3b. In this technique the channel response is estimated using the correlation of received pilot signal and the locally stored PN sequence [8]. If the transmitted pilot signal $p[n]$ is a PN sequence, the received pilot signal $\tilde{p}[n]$ can be expressed as $\tilde{p}[n] = p[n] \otimes h[n]$ in the time domain ( where $\otimes$ represent the convolution operator ) or $\tilde{P}[k] = P[k] \cdot H[k]$ in the frequency domain. Thus the channel response is given by $H[k] = \tilde{P}[k]/P[k] = \tilde{P}[k] \cdot P[k]^* / |P[k]|^2$. As the spectrum of a PN sequence is nearly constant at the frequency occupied by the received pilot signal, $|P[k]|^2$ can be approximated as a constant, $K$, which is equal to the length of the PN sequence. Thus the channel response can be estimated using<br><br>$$H[k] = \frac{\tilde{P}[k] \cdot P[k]^*}{K}$$ in the frequency domain<br>or<br>$$h[n] = \frac{1}{K} \sum_i \tilde{p}[n] \cdot p[n+i]^*$$ in the time domain. |

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| |  Fig (3a) Frequency pilot / Time domain average estimation<br><br>Fig   (3b) time pilot / Time domain correlation estimation<br><br>Figure. 3 Proposed Estimation Techniques (a) FPTA (b) TPTC<br><br>Yeh at p. 407.<br><br>Yeh further teaches that: |

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| | The multipath channel impulse response h[n] is:<br><br>$$h[n] = \delta[n] + \sum_{i=1}^{M} \alpha_i \cdot \delta[n - \tau_i] \;\; = \sum_{i=0}^{M} \alpha_i \cdot \delta[n - \tau_i] \qquad (3)$$<br><br>Where M is the total number of echoes<br><br>$\alpha_i$ represents the amplitude of $i^{th}$ path echo<br><br>$\tau_i$ represents the delay of $i^{th}$ path echo<br><br>$\alpha_0 = 1, \quad \tau_0 = 0$, (representing the principle pilot signal )<br><br>p[n] after multipath channel h(n) are:<br><br>$$\tilde{p}[n] = p[n] * h[n] = p[n] + \sum_{i=1}^{M} \alpha_i p[n-\tau_i] \qquad (4)$$<br><br>Yeh at p. 401.<br><br>Thus, a POSITA would understand that the procedure described in Yeh to determine "$h[n]$" necessarily discloses "*identifying at least one multipath transmission delay within a reverse path data signal received from a receiving device*" and the procedure described in Yeh to determine "$H[k]$" discloses "*determining at least one forward path pre-equalization parameter based on said at least one transmission delay*" to the extent that a combination with another base reference uses the frequency domain response "$H[k]$" for "*forward path pre-equalization*". Hence Yeh discloses Claim elements 1a) and 1b).<br><br>Yeh concludes that "the proposed estimation techniques **outperform** the conventional estimation techniques (FPFI and FPFA) in which the **channel response is estimated in the frequency domain**", thereby encouraging the use of "**time-domain channel estimation methods**" that include "*identifying at least one multipath transmission delay within a reverse path data signal received from a receiving device*". Yeh at p. 404. |

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| | See also Yeh at 404 (Channel Estimation Accuracy and Figures 5-8 showing improved performance providing further reason to use the time domain channel estimation in Yeh).<br><br>See also Yeh at 403 ("The FPTA estimation performance is better than the FPFA and FPFI" which is a further motivation to use Yeh's time-domain channel estimation for modifying the OFDM tone power).<br><br>See also Yeh at 403 ("The results demonstrate that the proposed estimation techniques (i.e., FPTA and TPTC) outperform the conventional estimation techniques (i.e., FPFA and FPFI).").<br><br>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly Channel Estimation and OFDM Tone Modification references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |
| 1[a] identifying at least one multipath transmission delay within a reverse path data signal received from a receiving device; | Yeh discloses identifying at least one multipath transmission delay within a reverse path data signal received from a receiving device.<br><br>For example, see the following passages and/or figures, as well as all related disclosures:<br><br>See discussion in 1[p] regarding Yeh's teach of use of a time domain channel estimate based on signals from a receiving device and the improvements therein.<br><br>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art |

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| | based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly Channel Estimation and OFDM Tone Modification references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |
| 1[b] determining at least one forward path pre-equalization parameter based on said at least one transmission delay; and | Yeh discloses determining at least one forward path pre-equalization parameter based on said at least one transmission delay. <br><br> For example, see the following passages and/or figures, as well as all related disclosures: <br><br> See discussion in 1[p] regarding Yeh's teach of use of a time domain channel estimate based on signals from a receiving device and the improvements therein. <br><br> One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly OFDM Tone Modification references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |
| 1[c] modifying a forward path data signal that is to be transmitted to the receiving device based on said at least one forward path pre- | Yeh discloses modifying a forward path data signal that is to be transmitted to the receiving device based on said at least one forward path pre-equalization parameter, where said modifying includes selectively setting different transmission power levels for at least two Orthogonal Frequency Division Multiplexing (OFDM) tones in said forward path data signal. <br><br> For example, see the following passages and/or figures, as well as all related disclosures: |

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| equalization parameter, where said modifying includes selectively setting different transmission power levels for at least two Orthogonal Frequency Division Multiplexing (OFDM) tones in said forward path data signal. | See discussion in 1[p] regarding Yeh's teach of use of a time domain channel estimate based on OFDM signals.<br><br>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly OFDM Tone Modification references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |
| 2. The method as recited in claim 1, further comprising: receiving said reverse path data signal over at least one reverse transmission path. | Yeh discloses receiving said reverse path data signal over at least one reverse transmission path.<br><br>For example, see the following passages and/or figures, as well as all related disclosures:<br><br>See discussion in 1[p] regarding Yeh's teach of use of a time domain channel estimate based on signals from a receiving device and the improvements therein.<br><br>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly Channel Estimation references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |

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| 3. The method as recited in claim 2, further comprising: transmitting said modified  forward path data signal over at least one forward transmission  path. | Yeh discloses transmitting said modified  forward path data signal over at least one forward transmission path.<br><br>For example, see the following  passages and/or figures, as well as all related disclosures:<br><br>See discussion in 1[p] regarding Yeh's teach of use of a time domain  channel estimate based on signals from a receiving  device and the improvements  therein.<br><br>One of ordinary skill would find this limitation  disclosed either expressly or inherently  in the teachings of this reference and its incorporated  disclosures taken as a whole, or in combination  with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element explicitly,  implicitly,  or inherently,  the element would have been obvious  to one of ordinary skill  in the art based on this reference, common  sense, ordinary creativity of one of ordinary  skill  in the art, and the state of the art. Additionally,  it would have been obvious  to combine  this reference with one or more other prior art references identified  in Defendants' Invalidity  Contentions  Cover Pleading, particularly  OFDM Tone Modification  references in the base invalidity  contention document. Rather than repeat those disclosures here, they are incorporated  by reference into this chart. |
| 4. The method as recited in claim 1, wherein said reverse path data signal includes  at least one type of data selected from a group of different types of data comprising Orthogonal Frequency Division Multiplexing (OFDM) data and Quadrature Phase | Yeh discloses wherein said reverse path data signal includes  at least one type of data selected from a group of different  types of data comprising Orthogonal Frequency Division  Multiplexing  (OFDM) data and Quadrature Phase Shift Keying (QPSK) data.<br><br>For example, see the following  passages and/or figures, as well as all related disclosures:<br><br>See discussion in 1[p] regarding Yeh's teach of use of a time domain  channel estimate based on signals from a receiving  device and the improvements  therein in which Yeh uses OFDM signals  to estimate the channel.<br><br>One of ordinary skill  would find this limitation  disclosed either expressly or inherently  in the teachings of this reference and its incorporated  disclosures taken as a whole, or in combination  with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element |

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| Shift Keying (QPSK) data. | explicitly,  implicitly,  or inherently,  the element would have been obvious  to one of ordinary skill  in the art based on this reference, common  sense, ordinary creativity of one of ordinary skill  in the art, and the state of the art. Additionally,  it would have been obvious  to combine  this reference with one or more other prior art references identified  in Defendants' Invalidity  Contentions  Cover Pleading,  particularly  Channel Estimation,  QPSK Usage and OFDM Tone Modification  references in the base invalidity  contention document.  Rather than repeat those disclosures  here, they are incorporated  by reference into this chart. |
| 5. The method as recited in claim 1, wherein said modified forward path data signal  includes at least one type of data selected from a group of different types of data comprising Orthogonal Frequency Division  Multiplexing (OFDM) data and Quadrature Phase Shift Keying (QPSK) data. | Yeh discloses The method as recited in claim 1, wherein said modified  forward path data signal includes at least one type of data selected from a group of different types of data comprising  Orthogonal Frequency Division  Multiplexing  (OFDM) data and Quadrature Phase Shift Keying (QPSK) data.  For example, see the following  passages and/or figures, as well as all related disclosures:  See discussion  in 1[p] regarding Yeh's teach of use of a time domain  channel estimate based on signals from a receiving device and the improvements  therein for the purpose of improving  the transmissions  on the forward link  using OFDM.  One of ordinary skill would find this limitation  disclosed either expressly or inherently  in the teachings of this reference and its incorporated  disclosures taken as a whole, or in combination  with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element explicitly,  implicitly,  or inherently,  the element would have been obvious  to one of ordinary skill  in the art based on this reference, common  sense, ordinary creativity of one of ordinary skill  in the art, and the state of the art. Additionally,  it would have been obvious  to combine  this reference with one or more other prior art references identified  in Defendants' Invalidity  Contentions  Cover Pleading,  particularly  OFDM Tone Modification  and QPSK Usage references in the base invalidity  contention  document.  Rather than repeat those disclosures  here, they are incorporated  by reference into this chart. |
| 6. The method as recited in claim 5, wherein said modified | Yeh discloses wherein said modified  forward path data signal includes sub-carrier pre-equalized OFDM data. |

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| forward path data signal includes sub-carrier pre-equalized OFDM data. | For example, see the following  passages and/or figures, as well as all related disclosures:<br><br>See discussion in 1[p] regarding Yeh's teach of use of a time domain  channel estimate based on signals from a receiving  device and the improvements  therein.<br><br>One of ordinary skill would find this limitation  disclosed either expressly or inherently  in the teachings of this reference and its incorporated  disclosures taken as a whole, or in combination  with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element explicitly,  implicitly,  or inherently,  the element would have been obvious  to one of ordinary skill  in the art based on this reference, common  sense, ordinary creativity of one of ordinary  skill  in the art, and the state of the art. Additionally,  it would have been obvious  to combine  this reference with one or more other prior art references identified  in Defendants' Invalidity  Contentions Cover Pleading, particularly  OFDM Tone Modification  references in the base invalidity  contention document. Rather than repeat those disclosures here, they are incorporated  by reference into this chart. |
| 7.  The method as recited in claim 6, further comprising: generating corresponding Quadrature Phase Shift Keying (QPSK) modulation  values based on said sub-carrier pre-equalized OFDM data. | Yeh discloses generating corresponding Quadrature Phase Shift Keying (QPSK) modulation  values based on said sub-carrier pre-equalized  OFDM data.<br><br>For example, see the following  passages and/or figures, as well as all related disclosures:<br><br>See claims 4, 5.<br><br>One of ordinary skill  would find this limitation  disclosed either expressly or inherently  in the teachings of this reference and its incorporated  disclosures taken as a whole, or in combination  with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element explicitly,  implicitly,  or inherently,  the element would have been obvious  to one of ordinary skill  in the art based on this reference, common  sense, ordinary creativity of one of ordinary  skill  in the art, and the state of the art. Additionally,  it would have been obvious  to combine  this reference with one or more other prior art references identified  in Defendants' Invalidity  Contentions Cover Pleading, particularly  OFDM Tone Modification  and QPSK Usage references in the base invalidity  contention  document. Rather than repeat those disclosures  here, they are incorporated  by reference into  this chart. |

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| 9. The method as recited in claim 1, wherein said reverse path data signal includes identifiable training data. | Yeh discloses The method as recited in claim 1, wherein said reverse path data signal includes identifiable training data.<br><br>For example, see the following passages and/or figures, as well as all related disclosures:<br><br>See discussion in 1[p] regarding Yeh's teach of use of a time domain channel estimate based on signals from a receiving device and the improvements therein.<br><br>As discussed in 1[p], Yeh teaches using pilot signals and comparing those to known locally stored signals.<br><br>See Title; See Abstract; See P. 400.<br><br>P. 401 ("Pilot tones are modulated with a PN sequence in the frequency domain and are inserted into each OFDM symbol with a ratio PR =1/R using scheme A. The channel response is estimated in the frequency domainusing FFT processing and comparing received pilots with the locally stored reference pilots.  This is referred to as the Frequency Pilot Frequency Interpolation (FPFI) technique since the channel response is obtained via frequency interpolation.  The pilot tones can also be inserted into the OFDM symbols using scheme B. In this scheme, all pilot tones are inserted in the first OFDM symbol (pilot symbol) of a data frame. The channel response is obtained by averaging several consecutive pilot symbols and comparing the average with a locally stored reference symbol *[5]*. This technique is referred to as the Frequency Pilot Frequency Average (FPFA) technique.<br><br>In this paper, channel estimation conducted in the time domain is proposed. In one of the two proposed techniques, instead of the PN sequence the positive and negative polarization pilot signals are alternatively inserted into OFDM symbols in the frequency domain using FPFI. An OFDM symbol can be regarded as several time slots, with each time slot having a pilot. Assuming that the impulse response of each time slot is identical, one can obtain the channel response in the time domain by averaging these time slots. This technique is referred to as the Frequency Pilot Time Average (FPTA) technique, as depicted in Fig. 3a. |

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| | In the other technique a PN sequence is periodically  inserted into the OFDM symbol in the time domain, and the channel response can be obtained via correlation in the time domain. This technique is referred to *as* the Time Pilot Time Correlation (TPTC) technique, as depicted in Fig. 3b. In this technique the channel response is estimated using the correlation of received pilot  signal and the locally  stored PN sequence [SI. If the transmitted  pilot  signal p[n] is a PN sequence, the received pilot  signal "pn] can be expressed as $F[n] = p[n]@ h[n]$ in the time domain ( where $0$ represent the convolution  operator ) or $\mathbf{F[k]} = \mathbf{P[k]\, H[k]}$ in the frequency domain.  Thus the channel response is given by<br><br>**j**<br>$\mathbf{H[k]} = \mathbf{F[k]/\, P[k]} = \mathbf{F[k].\, P[k]}\, /\, I\, P[k]\, I'$ . **As** the spectrum of 21 PN sequence is nearly constant at the frequency occupied by the received pilot  signal,  $I\, P[k]12$ can be approximated  *as* a constant, K, which is equal to the length of the PN sequence. Thus the channel response can be estimated using…");<br><br>One of ordinary skill  would find this limitation  disclosed either expressly or inherently  in the teachings of this reference and its incorporated  disclosures taken as a whole, or in combination  with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element explicitly,  implicitly,  or inherently,  the element would have been obvious  to one of ordinary skill  in the art based on this reference, common  sense, ordinary creativity of one of ordinary  skill  in the art, and the state of the art. Additionally,  it would have been obvious  to combine  this reference with one or more other prior art references identified  in Defendants' Invalidity  Contentions Cover Pleading, particularly Channel Estimation  and Training  Data references in the base invalidity  contention document. Rather than repeat those disclosures  here, they are incorporated  by reference into this chart. |
| 10. The method as recited in claim 9, further comprising: comparing said identifiable  training data to a local version of said training  data to | Yeh discloses comparing said identifiable  training data to a local version of said training  data to identify said at least one multipath  transmission  delay within said reverse path data signal.<br><br>For example,  see the following  passages and/or figures, as well as all related disclosures:<br><br>See discussion  in 1[p] regarding Yeh's teach of use of a time domain  channel estimate based on signals from a receiving  device and the improvements  therein. |

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| identify said at least one multipath transmission delay within said reverse path data signal. | As discussed in 1[p], Yeh teaches using pilot signals and comparing those to known locally stored signals.<br><br>See citations for claim 9<br><br>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly Channel Estimation and Training Data references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |
| 12. The method as recited in claim 3, wherein said at least one reverse transmission path is substantially reciprocal to said at least one forward transmission path. | Yeh discloses wherein said at least one reverse transmission path is substantially reciprocal to said at least one forward transmission path.<br><br>For example, see the following passages and/or figures, as well as all related disclosures:<br><br>See discussion of 1[p], 1[a], 1[b] describing that the base station is a transmitting device (e.g., for the downlink OFDM symbols) and that it also determines the pre-equalization parameter and performs the modification of the forward path (downlink) data signal based on the reverse link.<br><br>The use of the reverse link channel conditions in Yeh to adapt the forward path transmissions discloses this claim.<br><br>Yeh discloses TDD and using reverse path channel response to predict forward path channel response, which a POSITA would understand to necessarily disclose the limitations of this claim element. For example, Yeh discusses inserting a pilot tone and comparing it with a "local" copy for adjusting |

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| | transmissions.  See citations  for claims 9, 10 above.  This teaches the use of the reverse path channel conditions  for the forward path which relies on the reciprocal nature of the paths.<br><br>Indeed, the '369 acknowledges that reciprocity was already well-known  prior to the '369 patent, particularly  for TDD channels.  See '369 patent at 7:22-34 ("**As is well known**, many materials  are electromagnetically  isotropic, which is a property resulting from symmetry in their associated permittivity  and permeability  tensors. The Lorentz Reciprocity Theorem applies to such materials. Refraction and dielectric  reflection from materials therefore often show reciprocity,  or equivalence  of forward and reverse channel characteristics. Diffraction and reflection  are inherently  reciprocal due to the minimal  media affecting the electromagnetic  wave. Thus, reciprocity  can be used to determine channel characteristics that are used while pre-equalizing  a transmitted path. The use of a reciprocal channel is very useful, for example, when Time Division  Duplex (TDD) channels are implemented.").<br><br>One of ordinary skill would find this limitation  disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination  with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element explicitly,  implicitly,  or inherently,  the element would have been obvious to one of ordinary skill  in the art based on this reference, common  sense, ordinary creativity  of one of ordinary skill  in the art, and the state of the art. Additionally,  it would have been obvious  to combine  this reference with one or more other prior art references identified  in Defendants' Invalidity  Contentions Cover Pleading, the passages in the base invalidity  contention document discussing the Channel Estimation  and OFDM Tone Modification  references. Rather than repeat those disclosures  here, they are incorporated  by reference into this chart. |
| 13. The method as recited in claim 1, wherein identifying said at least one multipath  transmission delay, determining said at least one forward path pre- | Yeh discloses wherein identifying  said at least one multipath  transmission delay, determining  said at least one forward path pre-equalization  parameter, and modifying  said forward path data signal  are performed by a transmitting  device.<br><br>For example, see the following  passages and/or figures, as well as all related disclosures: |

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| equalization parameter, and modifying said forward path data signal are performed by a transmitting device. | See discussion in 1[p] regarding Yeh's teach of use of a time domain channel estimate based on signals from a receiving device and the improvements therein. The algorithms are run on a transmitting device that is also receiving the pilot signals on the uplink such as a base station.<br><br>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly OFDM Tone Modification references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |
| 14. The method as recited in claim 13, wherein said transmitting device includes a base station device that is operatively configured for use in a wireless communication system. | Yeh discloses wherein said transmitting device includes a base station device that is operatively configured for use in a wireless communication system.<br><br>For example, see the following passages and/or figures, as well as all related disclosures:<br><br>See discussion in 1[p] regarding Yeh's teach of use of a time domain channel estimate based on signals from a receiving device and the improvements therein. The algorithms are run on a transmitting device that is also receiving the pilot signals on the uplink such as a base station.<br><br>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly OFDM Tone |

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| | Modification references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |
| 15. The method as recited in claim 13, further comprising: using at least one transmitting device receive antenna operatively coupled to said transmitting device to receive said reverse path data signal over at least one reverse transmission path from the receiving device. | Yeh discloses using at least one transmitting device receive antenna operatively coupled to said transmitting device to receive said reverse path data signal over at least one reverse transmission path from the receiving device.

For example, see the following passages and/or figures, as well as all related disclosures:

The use of one or more transmit and receive antennas is inherent in, and obvious over, Yeh's disclosure include different forms of antennas such as antenna arrays, phased arrays, pointing antennas and beamforming antennas.

One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly Antenna Arrays references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |
| 19. The method as recited in claim 15, wherein said transmitting device is operatively coupled to a plurality of first device receive antennas. | Yeh discloses wherein said transmitting device is operatively coupled to a plurality of first device receive antennas.

For example, see the following passages and/or figures, as well as all related disclosures:

One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element |

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|  | explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly Antenna Arrays references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |
| 21. The method as recited in claim 15, wherein determining said at least one forward path pre-equalization parameter based on said at least one transmission delay further includes: determining at least one angle of arrival of said reverse path data signal with respect to said at least one transmitting device receive antenna. | Yeh discloses wherein determining said at least one forward path pre-equalization parameter based on said at least one transmission delay further includes: determining at least one angle of arrival of said reverse path data signal with respect to said at least one transmitting device receive antenna.<br><br>For example, see the following passages and/or figures, as well as all related disclosures:<br><br>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly Antenna Arrays references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |
| 28. The method as recited in claim 13, further comprising: using at least one transmitting device transmit antenna operatively coupled to said transmitting | Yeh discloses using at least one transmitting device transmit antenna operatively coupled to said transmitting device to transmit said modified forward path data signal over at least one forward transmission path to the receiving device.<br><br>For example, see the following passages and/or figures, as well as all related disclosures:<br><br>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art |

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| device to transmit said modified  forward path data signal over at least one forward transmission  path to the receiving  device. | at the time of the alleged invention.  To the extent this reference is not found to teach this element explicitly,  implicitly,  or inherently,  the element would have been obvious to one of ordinary skill  in the art based on this reference, common sense, ordinary creativity of one of ordinary skill  in the art, and the state of the art. Additionally,  it would have been obvious  to combine  this reference with one or more other prior art references identified in Defendants' Invalidity  Contentions Cover Pleading, particularly Antenna Arrays references in the base invalidity  contention document. Rather than repeat those disclosures here, they are incorporated  by reference into this chart. |
| 32. The method as recited in claim 28, further comprising: setting at least one antenna pointing parameter associated with said at least one transmitting  device transmit antenna based on said at least one forward path pre-equalization parameter. | Yeh discloses setting at least one antenna pointing  parameter associated with said at least one transmitting device transmit antenna based on said at least one forward path pre-equalization  parameter.<br><br>For example, see the following  passages and/or figures, as well as all related disclosures:<br><br>One of ordinary skill would find this limitation  disclosed either expressly or inherently  in the teachings of this reference and its incorporated  disclosures taken as a whole, or in combination  with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element explicitly,  implicitly,  or inherently,  the element would have been obvious  to one of ordinary skill  in the art based on this reference, common sense, ordinary creativity of one of ordinary skill  in the art, and the state of the art. Additionally,  it would have been obvious  to combine  this reference with one or more other prior art references identified in Defendants' Invalidity  Contentions Cover Pleading, particularly Antenna Arrays references in the base invalidity  contention document. Rather than repeat those disclosures here, they are incorporated  by reference into this chart. |
| 33. The method as recited in claim 28, further comprising: setting  at least one phased array antenna transmission  directing parameter associated with said at least one | Yeh discloses setting at least one phased array antenna transmission  directing  parameter associated with said at least one transmitting  device transmit antenna based on said at least one forward path pre-equalization  parameter.<br><br>For example, see the following  passages and/or figures, as well as all related disclosures:<br><br>One of ordinary skill would find this limitation  disclosed either expressly or inherently  in the teachings of this reference and its incorporated  disclosures taken as a whole, or in combination  with the state of the art |

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| transmitting device transmit antenna based on said at least one forward path pre-equalization parameter. | at the time of the alleged invention.  To the extent this reference is not found to teach this element explicitly,  implicitly,  or inherently,  the element would have been obvious to one of ordinary skill  in the art based on this reference, common sense, ordinary creativity of one of ordinary skill  in the art, and the state of the art. Additionally,  it would have been obvious  to combine  this reference with one or more other prior art references identified in Defendants'  Invalidity  Contentions Cover Pleading,  particularly Antenna Arrays references in the base invalidity  contention document. Rather than repeat those disclosures  here, they are incorporated  by reference into this chart. |
| 35. The method as recited in claim 28, further comprising: selecting said at least one transmitting device transmit antenna from a plurality  of transmitting  device transmit antennas that are each operatively coupled to said transmitting  device. | Yeh discloses selecting said at least one transmitting  device transmit antenna from a plurality  of transmitting  device transmit antennas that are each operatively  coupled to said transmitting  device.

For example, see the following  passages and/or figures, as well as all related disclosures:

One of ordinary skill would find this limitation  disclosed either expressly or inherently  in the teachings of this reference and its incorporated  disclosures taken as a whole, or in combination  with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element explicitly,  implicitly,  or inherently,  the element would have been obvious to one of ordinary skill  in the art based on this reference, common sense, ordinary creativity of one of ordinary skill  in the art, and the state of the art. Additionally,  it would have been obvious  to combine  this reference with one or more other prior art references identified in Defendants'  Invalidity  Contentions Cover Pleading,  particularly Antenna Arrays references in the base invalidity  contention document. Rather than repeat those disclosures  here, they are incorporated  by reference into this chart. |
| 36. The method as recited in claim 35, further comprising: selectively transmitting  a plurality of beams using two or more transmitting | Yeh discloses selectively transmitting  a plurality  of beams using two or more transmitting  device transmit antennas.

For example, see the following  passages and/or figures, as well as all related disclosures:

One of ordinary skill would find this limitation  disclosed either expressly or inherently  in the teachings of this reference and its incorporated  disclosures taken as a whole, or in combination  with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element |

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| device transmit antennas. | explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly Antenna Arrays references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |
| 37. The method as recited in claim 36, wherein each of said transmitted plurality of beams is selectively adjusted in phase and amplitude to reduce multipath affects when received by said receiving device. | Yeh discloses wherein each of said transmitted plurality of beams is selectively adjusted in phase and amplitude to reduce multipath affects when received by said receiving device.<br><br>For example, see the following passages and/or figures, as well as all related disclosures:<br><br>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly Antenna Arrays references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |
| 41. The method as recited in claim 1, wherein determining said at least one forward path pre-equalization parameter based on said at least one transmission delay further includes: | Yeh discloses wherein determining said at least one forward path pre-equalization parameter based on said at least one transmission delay further includes: sub-band equalizing said forward path data signal using corresponding frequency domain reverse path data.<br><br>For example, see the following passages and/or figures, as well as all related disclosures:<br><br>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention.  To the extent this reference is not found to teach this element |

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| sub-band equalizing said forward path data signal using corresponding frequency domain reverse path data. | explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendants' Invalidity Contentions Cover Pleading, particularly OFDM Tone Modification references in the base invalidity contention document. Rather than repeat those disclosures here, they are incorporated by reference into this chart. |